

COMPUTER NETWORKING AS A VEHICLE FOR CITIZEN PARTICIPATION:
A CASE STUDY OF THE WHITE HOUSE CONFERENCE ON PRODUCTIVITY

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INTRODUCTION

In *The Network Nation* (Hiltz and Turoff, 1978), the possibility of dispersed citizens using computer mediated communication to discuss matters of political policy and to formulate recommendations or coordinate political action was discussed. In the Spring of 1983 such a scenario was enacted. At that time, the American Productivity Center (APC) in Houston, Texas, organized and coordinated an effort to use EIES (the Electronic Information Exchange System) as a means of formulating private sector recommendations for improving productivity in the U.S., to be presented at the White House Conference on Productivity the following fall. About 200 people worked together in seven different task groups to produce the recommendations.

This is a report on the computer conferences and on the reactions of the participants to their experiences. The data presented here were gathered through participant observation in one of the working groups, (including attendance at the meetings in Houston and Pittsburgh; see below); by the use of the Survey system on EIES to administer an online survey to the participants; and by use of a conference analysis program on EIES which counts amount of participation by each member of a conference. We will begin with a simple description of the activities which took place, the data that were gathered, and the overall distribution of responses obtained.

This will be followed by an analysis of the differences among the seven working groups and of some possible explanations for these differences. For not only is the effort as a whole an interesting case study; it is a "natural experiment." The seven working groups had an identical task, the same training, similar equipment, the same time to accomplish their task, and similar size and composition. However, some of the groups were more successful than others. We will try to identify some possible explanations for these differences in outcome, focussing particularly on differences in moderator behavior.

DESCRIPTION OF THE PROJECT

A total of 182 participants, plus supporting personnel from the APC, took part in the conferences. They were divided into seven working groups, each with their own online conference. The seven groups, which varied in size from 21 to 32 members, were as follows:

- .Training
- .Cooperation in the Workplace
- .Health Care
- .Quality
- .Reward Systems
- .Information Workers/Measurement
- .Technology

The participants were most generally at the Director or Vice Presidential level, responsible for productivity improvements in major U.S. corporations. However, there were also many representatives of universities, non-profit research institutes, government agencies, and labor unions. For instance, included were vice presidents of Chrysler, Texas Instruments, and AT&T; professors at Harvard, Stanford, and Princeton; representatives of The Conference Board, the Department of Defense, the Department of Labor,

and the American Medical Association; and officers of the United Steelworkers, the AFL-CIO, the United Auto Workers, and the Communications Workers of America. This was not a collection of "ordinary" citizens, but rather of the elite from a variety of private and public organizations. The very idea of trying to get such a large and diverse group to cooperate and agree on issues affecting their economic interests is fascinating; as can be imagined, debate often was quite heated.

The working groups were charged with formulating and agreeing upon a small number of key implementable recommendations to be presented first at a "pre-conference" on Private Sector Initiatives on Productivity in Pittsburgh in August, 1983, and subsequently as a written and oral report at the White House Conference in September. The conferences began in April, following a two-day face-to-face "kick-off" session at APC headquarters in Houston. The groups had three months or less to agree upon and produce their interim report by July 8, to be presented at the pre-conference. Each group had a moderator whose responsibility it was to organize the efforts and eventually produce the final report. From July 8 through August 18, the groups worked to review, edit, and refine their interim report, to produce their final report.

Given the elite nature of the participants, this was a "first class" effort, made possible by contributions from a number of sources. The participants or their organizations contributed their time and the expense of attending the kick off meeting in Houston. Each participant was given a microcomputer, a 300 baud "smart modem", and software for use during the project, donated by the manufacturers.

EIES donated half of the accounts, and GTE Telenet donated a substantial portion of the TELENET time used. Sponsoring organizations, which included Warner-Lambert, the Bank of America, Hewlett Packard, and the Departments of Education and Labor, donated the remaining costs for use of EIES and Telenet.

Prior to the kick-off meetings, the moderators met in Houston and were trained in the use of the hardware and software on the microcomputers they would be using, the use of EIES, and suggested procedures to be used in training and moderating their groups. At the two-day face-to-face kickoff session for each working group, the moderator then led the members through four main activities:

- . "Getting to Know" one another, through formal round robin self introductions and informal social gatherings at mealtimes.
- . Learning to use the microcomputer and other equipment which each would subsequently receive in the mail.
- . Learning to use EIES
- . Setting the objectives and initial agenda or procedures for their working group's conference.

The second and third activities were conducted during several hours of "hands on" practice and initial discussion in the group conference, in a room full of microcomputers. The learners had written manuals and instructions to follow, and were able to ask for assistance from roving APC personnel whenever they ran into difficulty.

Most of the participants had no previous experience using microcomputers, let alone computer-mediated communication. The vast majority chose to place their equipment in their homes rather than in their offices, and were encouraged to do so by APC. This enabled

them to participate in the conferences in the evenings or weekends, when it would not compete with demands on their time in the office.

Only about half of the invited participants actually took an active part in the conferences, over the whole four months. (The reasons for "drop out" were gathered though an offline post-use survey, and will be discussed in a separate report). Over a three month period, the participants in the seven conferences generated about 2,170 comments in the conferences, 12,600 private messages, and reams of text in group notebooks which held the reports (APC, 1983c:p. 1). The average length of the individual comments contributed to the conferences ranged from 25 to 31 lines. The interim reports distributed at Pittsburg were bound in a volume about 200 pages thick. For each of the working groups, it contained a set of recommendations on which there had been general agreement, along with substantial discussion of the background, rationale, implementations, or implications of the recommendation. For example, three of the recommendations of the "Cooperation in the Workplace" group were as follows:

.Managements should move toward a less authoritarian and more interactive style of corporate governance at all levels of their organizations.

.Leaders of America's organized workers should accept a greater responsibility for the competitiveness of the organizations in which their members work, thus enhancing their members' long-term interests, including job security and share of the national wealth.

.Although the means of achieving long-term worker security rests primarily with workers, their representatives, and management, government has a clear responsibility to moderate the human impact of the competitive process. (American Productivity Center 1983a; see also APC 1983b for the final form of the recommendations).

As the discussion of the first recommendation noted, "Involvement of

employees is a major power shift and there needs to be acceptance of the need for it." In other words, many of the recommendations arrived at (in all of the working groups, not just the one used as an example), were calling for some basic changes in relationships among industry, workers, and the government.

DESCRIPTION OF DATA AND RESULTS

We will begin by reviewing the questions asked and the distribution of responses. The 95 respondents to the survey do not include the people who had "dropped out" of active online participation; their opinions are undoubtedly much more negative.

Though all of the working groups can be considered to have been "successful" in that they produced a set of recommendations and reports by their deadlines, some were more active and seemed more successful than others. We get our first inkling of this in the very first question, where we see in the results displayed in Table 1 that Health Care had the fewest respondents. For some reason a number of these people have "dropped out", and were not even signing online during the two weeks in which the online APC survey was available. We must keep this variability among conferences in mind in looking at the results, and will return to an exploration of some of the reasons for the variations in the second part of the report.

One pre-condition to successful task completion when a group is working through a computer-mediated communication system is a relatively high priority and commitment given to the task. It is so easy to ignore the online activity, since one does not have to participate at a fixed time. If other activities are higher in

priority than an online activity, the latter is often neglected. This was not the case with the White House Conference on Productivity task forces. As can be seen in Table 2, the commitment of the members to the task was high for about 90% of the participants.

This high commitment is reflected in the amount of time devoted to the task (Table 3). In making up the questionnaire, the range was poorly estimated; half of the respondents chose the highest answer, that they had spent more than 40 hours working on the task force conference over the three months between the kick-off meeting in Houston and the pre-conference meeting in Pittsburgh. Approximately another third spent 3-5 person-days on the effort.

Looking at satisfaction with the process of communicating online, most participants had little or no difficulty with the considerable panoply of equipment provided, but about a quarter did have difficulties. Overall satisfaction with EIES as a conferencing system is on the positive side (mode of 6 and mean of 4.8, with "1" being "LOW" and "7" being "HIGH"). However, about one quarter registered overall satisfaction with EIES as being on the negative side. Participating in the conferences is felt to be intellectually stimulating by almost all participants. (On a 1-to-7 scale ranging from "Strongly Agree" to "Strongly Disagree", the mode is 2 and the mean is 2.6). Likewise, two thirds strongly agree that participating in the conferences is enjoyable.

In comparing the EIES conferences to what might have happened if the groups had done their work via traditional face-to-face conferences, we find considerable variability in responses (see Table 5). The

majority give the EIES conferences slightly higher ratings than face-to-face conferences, but there is a sizable minority which prefers the face-to-face mode. This did NOT vary a great deal among the working groups in the different conferences: the division of opinion occurs across all working groups.

For example, most people tend to disagree that more recommendations and a higher quality final product would have been produced in a face-to-face conference, but about a third agree. There is a definite split, or bimodal distribution, on the question of whether the total number of person-hours that would have been required to produce the same results in a face-to-face mode would have been more or less. 43% think it would have taken more hours face-to-face, and 44% think it would have taken less. In making an overall assessment of whether the use of EIES "was an experience in productivity improvement", the majority tend to strongly agree, but a quarter disagree.

This balance between positive and negative evaluations of computerized conferences as compared to face-to-face meetings is reflected in the comments made in response to an open-ended question asked at the end of the survey. Almost all respondents took the opportunity to comment. A generous selection of reflections which pointed out the advantages and disadvantages has been included in Table 6. The responses placed first seem especially insightful. As one participant points out, the nature of both the process and the end product are different than what would have been produced in a face-to-face meeting. The reports are a more genuinely collaborative group effort. The contributions are more thoughtful and "in depth."

It would have been impossible to gather such a large and representative group of influential participants for five days of face-to-face meetings. The hours spent online are described as "cheap hours" with "low opportunity costs," because they are generally added onto the work day rather than substituting for other activities.

On the other hand, some participants found that the several hours a week added to their regular activities were much more than they had bargained for, and found it burdensome to keep up. Many of the complaints deal with equipment and training. There were complaints about the 300-baud modems supplied being too slow. Rather than supplying a sophisticated text editor for all micros, only a primitive offline editing capability was provided for the groups which used Apples. In order to encourage the participants to work offline as much as possible, thus saving Telenet charges, the communications software provided initially allowed them to dump waiting items onto their disks, then required them to disconnect before printing the items. Finally, EIES itself was down twice during the period, much to the consternation of many participants, who could not believe that computers actually crash in this day and age. Several participants suggested that a second face-to-face meeting would have been advisable, at which time additional training on coping with the equipment and software could have been included.

Many participants comment on an unexpected benefit: making new friends. On the other hand, many found the medium "cold" and missed the "immediacy" of face-to-face meetings. There were also mixed feelings about the democratic nature of the medium. Although many

enjoyed the "free-wheeling" deluge of comments, others were annoyed by what they considered to be "irrelevant" or overly lengthy comments.

THE IMPORTANCE OF THE MODERATOR

EIES conferences have a "moderator" or leader whose role it is to facilitate the group discussion and decision-making. Certain "powers" of the moderator are supported by the software. For instance, although any author may modify his or her entries, only the moderator may modify the key words or content of comments written by others. This allows the moderator to assist in the organization of the material. Only the moderator can add or delete people from a conference or notebook, and assign membership status. For instance, in the APC working groups, only the moderator had "write privileges" in the notebook into which finished sections of recommendations were transferred; others were given only "read privileges" in the notebooks. Most importantly, the social dynamics of the medium are such that it takes a very strong leader to organize and motivate the group's cooperative efforts.

A key question in understanding the importance of the moderator for the effectiveness of the groups asked participants to rate the amount of structure provided by the moderator on a 1-to-7 scale which uses the "1" to indicate the "too little" structure extreme, "4" to mean "Just right" and 7 to indicate the "Too Much" structure extreme (see Table 7). The modal answer is 4; in other words, most participants are pleased with the efforts of the moderators. However, there is a great deal of variation by conference. The two "best" ratings are given to the moderators for the Information Workers conference (mean of 4.2, shading towards "too much") and the Technology conference (mean of 3.8, shading just a little towards "too little" structure.)

The least satisfied ratings for the moderator are for for the Health Care conference which had lost most of its participants; three of the seven from this conference responded with a "1" or "2", meaning much too little structure provided by the moderator.

Some of the responses to the open-ended question targeted on the crucial role of the moderator. A selection is included in Table 7. As the participants recognized, a good moderator has a time-consuming and complex function. He or she must understand "group dynamics" enough to stimulate the reluctant members to participate and encourage overly verbose members to tighten their texts. Though the role can be divided, he or she is expected to be both a "task leader", organizing the group's work, and a "social-emotional" leader, encouraging the development of online collaborations and setting a tone which makes the interchange stimulating and enjoyable as well as productive. As one of the participants sums up, the control and guidance of the moderator is crucial to the success of the conference.

We have noted that satisfaction and participation and ratings of moderators varied among the conferences. Let us now turn to an expmination of the differences among the conferences and of the importance of both the moderator and of other factors in explaining these differences.

DIFFERENCES AMONG THE CONFERENCES

Table 8 summarizes some of the differences in participation and outcome among the seven APC conferences. In the first column is the mean ratings for amount of structure provided by the moderator, which

we have just described above. The number in parentheses in this column is the rank-order of the conferences on this variable, from the one in which the moderator was perceived to have provided the most structure (ranked 1) to the one in which the least structure was provided (rank 7). By comparing rank-orders on some of the variables, we will be able to see what patterns emerge in terms of correlations.

An analysis of variance was performed on the data for which it was appropriate to determine the extent to which the differences among conferences are statistically significant. The results are labelled "ANOVA P" in the last row of Table 8. Analysis of variance is a technique which compares the "within group" variance to the "between groups" variance. There has to be a larger difference between groups than among members within the same group, in order to be significant.

The "P" or probability is the level of significance of the "F ratio" produced by the analysis of variance. Since the assumptions of random sampling and certain other statistical assumptions are not met in all cases, one cannot take the probability at face value and say that, in the case of the moderator ratings for example, "there is only one chance out of a thousand that the differences in the perceived role of the moderator are not significant." However, the probability figure is a good rough guide to the extent to which the differences among groups are strong and "real." Probabilities of .05 or less are usually considered significant.

Column three shows the number of comments made by the moderator in each conference. The amount of activity by the moderator is related to the perceptions of the amount of overall structure provided. The

three groups in which the moderator made the most comments are also the three groups which are perceived as the ones in which the moderator provided the most guidance or structure. However, there is far from a perfect relationship, so that we can deduce that there is a "style" or qualitative component to the structuring variable, not just a reflection of amount of activity.

Column four shows the differences in ratings of the quality of the conference entries. Though the rank orders are not the same, there appears to be a rough similarity. When the amount of structure variable is correlated with the quality ratings, there is a significant though only moderate relationship (Pearson's $R = .20$, $p = .03$).

A second measure of the subjective perceptions of the participants in the conferences about their outcome is the question on whether the conferences were perceived as an overall experience in "productivity improvement." The means and rank orders by conference are shown in column five. As with the quality ratings, there is some difference among the conferences. Note that the rank order is somewhat different for the two questions. In subsequent analyses, the two questions were combined to form an "outcome index."

The final column in Table 8 introduces a very different sort of variable. It shows the number of active participants in each conference in addition to the moderator. The criterion for "active" participation was arbitrarily set at having made ten or more comments in the conferences. The number of active contributors varies markedly among the conferences, from only three to a high of eighteen. There

is no relationship at all between the activity of the moderator and the number of other active contributors.

Pearson's correlations were computed between the outcome index and measures of participation in the conference by the moderator and others. One variable is the number of comments made by each individual participant who responded to the survey (not shown in Table 8, which displays only group averages). The correlation between the number of comments contributed by an individual and his/her outcome rating of the conference is an interesting .23 ($p=.07$). This means that those who contributed the most were the least satisfied with the outcome. There is also a weak negative relationship between the outcome index and the number of comments provided by the moderator (Pearson's $r = -.11$, $p = .17$). On the other hand, there is a significant relationship between the number of active contributors in a conference and the outcome index ($R=.19$, $p=.05$).

Subjective Satisfaction with the System

There were no differences among groups in the measures of subjective satisfaction with the system shown in Table 4, or in regard to an overall satisfaction index formed by combining the scores for the questions on overall satisfaction with EIES and whether participation was stimulating and enjoyable. However, there were some relationships measures of participation. Those individuals who contributed the largest percentages of the total lines entered into a conference tended to be the least satisfied with the system (Pearson's $R = -.19$, $p=.04$). On the other hand, there is a weak tendency for the relative contributions by the moderator to be

positively related to satisfaction with the system ($R = .10$, $p = .17$). The explanation seems to have something to do with "exchange theory": those who receive more than they contribute are likely to be more satisfied with their experiences in using the system (see Hiltz, 1984). In other words, being a relatively active contributor tends to make using the system seem more like "work" for you, but reading them is stimulating and enjoyable to others. But if everybody watches and enjoys themselves, soon there is nothing to watch; somebody has to write in order for others to read! This seems to be one of the ironies of computer conferences. And of life? Many people would rather watch than work. It is especially ironic since the relationship occurs in groups dedicated to improving productivity.

A FOOTNOTE: COMPUTER CONFERENCING AS A WAY OF
INTRODUCING EXECUTIVES TO COMPUTERS

There were many predictions that high-level managers and professionals would never "degrade" themselves by typing on a keyboard. Though there were some complaints about the difficulty of typing, they were relatively few. The majority of the participants in these teleconferences grew to "know and love" their microcomputers and spent a great deal of time online; in fact, much more time than they had anticipated or felt they could "afford," in many cases.

Though it was certainly not an objective of this project to increase the computer literacy and computer use of executives, this was one outcome of the project in many cases. The final table in this report shows the responses to a question on whether use of EIES had stimulated consideration of other computer-based activities. The vast

majority agreed that it had, and were given the opportunity to describe the kinds of computer-based activities they had begun to pursue. A selection of these comments is also included in Table 9. In all, seventy of the respondents provided descriptions of such activities. They certainly should warm the hearts of computer equipment manufacturers.

SUMMARY

About 200 high-level representatives of management, government, labor, and universities or research organizations were invited to formulate recommendations for the White House Conference on Productivity. They were divided into seven task groups focussing on different aspects of the economy, such as the use of training programs or reward systems to increase productivity of workers. About half of those invited to join the seven computerized conferences remained participants over the four months in which the work took place. All seven groups did arrive at recommendations and produce a report by working together online. It is noteworthy that such a large and diverse group could use this new technology to accomplish its objectives of influencing government policies.

The majority of those who actively participated in the online working groups have favorable opinions about computerized conferences. However, there is an almost even split between those who think that face-to-face meetings are superior, and those who prefer the computer conferences.

The seven conferences did vary in terms of the subjective ratings of their outcome by the participants. The amount of activity and

structure provided by the moderator is a key variable in explaining these differences. A second important predictor is the number of active contributors to the conferences. Those with more members making a large number of comments tend to be rated more highly. This seems to be another example of the "critical mass" phenomenon noted in The Network Nation (Hiltz and Turoff, 1978). It is when a large number of participants are actively contributing to discussions of complex problems over a fairly long period of time that the potential advantages of the medium become apparent.

Table 1

Activity by Conference

Q1. The working group in which I participated (the most) is:

Conference	N
Training	14
Cooperation in the Workplace	14
Health Care	7
Quality	12
Reward Systems	13
Technology	13
Information Workers	16
Staff	3

Total N responding to this question= 92

TABLE 2
COMITTMENT

My personal comittment to the goals of the conference was:

0	2%	2%	5%	12%	45%	34%
: 1	: 2	: 3	: 4	: 5	: 6	: 7
LOW						HIGH

N=92, Mean= 5.9

TABLE 3
HOURS SPENT

My best estimate of the total number of hours that I have spent thinking about this conference and interacting via micro or terminal (since the Houston kick-off) is:

- (1) Less than 8 hours 1%
- (2) 8-15 hours 3%
- (3) 16-23 hours (2-3 person-days) 13%
- (4) 24- 40 hours (3-5 person-days) 31%
- (5) More than 40 hours- 50%

Total=91

Table 4
SATISFACTION WITH USE OF EIES AND EQUIPMENT

EQUIPMENT DIFFICULTY

The amount of difficulty that I had with the EQUIPMENT (computer, modem, printer, etc.) was:

28%	24%	11%	10%	10%	16%	1%
: 1 :	: 2 :	: 3 :	: 4 :	: 5 :	: 6 :	: 7 :
LOW						HIGH

Total=90 Mean=3.0 SD=1.9

OVERALL SATISFACTION WITH EIES

My overall satisfaction with EIES as a conferencing system is:

2%	13%	9%	9%	24%	30%	12%
: 1 :	: 2 :	: 3 :	: 4 :	: 5 :	: 6 :	: 7 :
LOW						HIGH

Total= 90 Mean= 4.8 SD=1.7

INTELLECTUALLY STIMULATING

Participating in the conference was intellectually stimulating:

27%	36%	12%	9%	7%	10%	0%
: 1 :	: 2 :	: 3 :	: 4 :	: 5 :	: 6 :	: 7 :
STRONGLY AGREE						STRONGLY DISAGREE

Total= 90 Av= 2.6 Stddev= 1.60

ENJOYABLE

Participating in the conference was enjoyable:

36%	30%	19%	6%	4%	4%	1%
: 1 :	: 2 :	: 3 :	: 4 :	: 5 :	: 6 :	: 7 :
STRONGLY AGREE						STRONGLY DISAGREE

Total= 90 Av= 2.3 Stddev= 1.4

TABLE 5
RATINGS OF THE OUTCOME OF THE APC CONFERENCES

QUALITY OF ENTRIES

The overall quality of the conference entries was:

1%	11%	12%	10%	38%	23%	4%
: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
LOW						HIGH
Total= 90		Mean= 4.6		Stddev= 1.4		

**EIES VS. FACE-TO-FACE
NUMBER OF RECOMMENDATIONS**

The next several questions ask you to compare the productivity of the EIES conference to what might have happened if your group had met face-to-face to formulate and produce its recommendations.

More recommendations would have been proposed by a face-to-face conference:

15%	9%	10%	26%	7%	29%	5%
: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
STRONGLY AGREE						STRONGLY DISAGREE
Total= 82		Av= 4.1		Stddev= 1.9		

QUALITY OF PRODUCT

A higher quality final product (recommendations and supporting material) would have been produced by a face-to-face conference:

12%	10%	16%	17%	12%	23%	10%
: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
STRONGLY AGREE						STRONGLY DISAGREE
Total= 82		Mean= 4.2		Stddev= 1.9		

COMPARATIVE TIME REQUIRED

The total number of person-hours that would have been required to explore the issues and arrive at recommendations in a face-to-face meeting would have been:

6%	22%	16%	11%	11%	12%	20%
: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
MUCH LESS			SAME			MUCH MORE
Total=80		Mean=4.2		Stddev= 2.0		

PRODUCTIVITY IMPROVEMENT

Overall, the use of EIES on this project was an experience in productivity-improvement.

25%	17%	18%	14%	8%	14%	4%
: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
STRONGLY AGREE						STRONGLY DISAGREE

TABLE 6
REFLECTIONS ON COMPUTERIZED CONFERENCING BY THE PARTICIPANTS

QUESTION: "Do you have any other comments or observations to add concerning your APC teleconferencing experience on EIES? Is there anything that you found particularly satisfying or frustrating, or that you would have changed?" Edited to remove blank spaces and typos and identifying information.

"T" signifies a new response. Responses have been organized and selected to represent the range of "pro" and "con" observations.

A. WILDLY ENTHUSIASTIC COMMENTS

T) Actually, the main difference between the EIES-produced report and one that might have been produced in a meeting is the collaborative nature of the full product. If we had met, in reality this report would have been the product of one author, "taking account" (to the extent she could) of "input" of the other participants. In other words, the amazing thing about the teleconference is that it really is a group product. In 24 years of working I have never seen such a thing -and it is entirely due to the mode of operation, that is, teleconference-drafting and communication.

T) THE GREAT ADVANTAGE OF THE TELECONFERENCE METHOD IS THAT ONE BURNS UP CHEAP HOURS, THAT IS, HOURS WITH LOW OPPORTUNITY COSTS. THUS ONE CANNOT MEASURE THE RELATIVE PRODUCTIVITY OF SUCH CONFERENCES BY "HOURS SPENT" AND COMPARE THAT WITH HOURS SPENT ON A FACE-TO-FACE CONFERENCE. FACE-TO-FACE CONFERENCES OFTEN ROB PARTICIPANTS OF SOME OF THEIR MOST PRODUCTIVE TIME. FURTHERMORE, MUCH TIME IS BLOWN TRAVELLING. THERE ARE OTHER ADVANTAGES. FRICTION WITH ONE'S FAMILY IS REDUCED BECAUSE THE NUMBER OF ABSENCES FROM HOME IS REDUCED. FINALLY, THE QUALITY OF COMMUNICATIONS TENDS TO BE HIGHER IN TELECONFERENCES. BECAUSE ONE HAS TO TYPE IN ONE'S THOUGHTS, ONE THINKS ABOUT THEM A BIT MORE BEFORE COMMUNICATING THEM. IN SHORT, THERE'S LESS HOT AIR EXCHANGED.

T) The informal dialogue was lots of fun...I made friends in an unexpected way.

T) The medium is somewhat tyrannical by its nature and an ideal setup

T) Participants perform differently in this mode than they would in face to face encounters or teleconferencing. More thoughtful responses. Obtaining information from 26 fellow conferees in this mode proved out as advertised. Got to probe more in depth amongst fellow conferees.

T) On balance, I think the EIES approach is extremely valuable. It provides a way of getting long-term interaction on an issue, rather than the brief interaction of face-to-face meetings.

T) I enjoyed the experience and think it has excellent potential for improving the productivity of meetings. My biggest frustration was the inability to type well. This curtailed the full expression of my thoughts.

T) Learning to get on line was very frustrating at first, but turned out to be an enjoyable challenge. The self imposed pressure to contribute was a very motivating factor. Encouragement by others in the conference was very helpful.

B. OPEN--ENDED COMMENTS: "CON"

T) summary communication between groups was not handled well and I do not sense any real coordination and overall framework into which all the recommendations will fit.

T) My equipment was late arriving and getting operational. This, coupled with my being able to attend only 1 day of the start-up meeting in Houston, put me so far behind that I felt unable to catch up and contribute directly in the conference comment process. That has been frustrating to me. The mechanical process of securing access to conference comments on the tube and then having to capture them on the printer felt like a waste of my time.

T) I WAS PARTICULARLY FRUSTRATED BY THE TIME REQUIRED TO VIEW, SAVE, AND PRINT THE MATERIAL CONTRIBUTED BY OTHERS. IF THAT HAD BEEN LESS TIME- CONSUMING, I COULD HAVE CONTRIBUTED MORE MYSELF. I DON'T MIND USING A COMPUTER TO TELECONFERENCE, AND EIES IS NOT A BAD SYSTEM, BUT I THINK I WOULD HAVE CONTRIBUTED MORE FACE-TO-FACE. I HAVE VERY LITTLE UNINTERRUPTED TIME, SO I WOULD HAVE CONTRIBUTED MORE, IF I HAD BEEN ABLE TO GET AWAY SOMEWHERE FOR 2 OR 3 DAYS INSTEAD OF TRYING TO FIT THIS INTO MY USUAL 10 HOUR WORKDAY. I THOUGHT I WOULD ONLY HAVE TO FIND AN EXTRA HOUR OR TWO A WEEK, BUT I CAN'T EVEN KEEP UP WITH WHAT OTHERS CONTRIBUTE IN THAT AMOUNT OF TIME -- WHICH IS ABOUT ALL I CAN SPARE WHEN IN THE OFFICE.

T) Information overload becomes a problem as neophytes like us learn to master and then abuse the technology. Would encourage more 2 4 party messaging and less conference comments

T) The sense of being at the mercy of an erratically unreliable machine when trying to meet deadlines was unnerving. The overall experience and subsequent meetings illustrated the advantage of the idea as a method for creating constructive & convergent meetings on complicated issues.

T) Not being able to use the EIES system easily was both limiting and frustrating. More training is still needed. If possible, the group should return to EIES training 2 to 3 weeks after the TC really gets rolling. A compromise would be to give the Moderator much more thorough training so s/he could be more of a technical resource to the participants. Participants tend to seek help from the Moderator whom they know personally before using EIES' HELP.

T) Primarily, I would have preferred a more sophisticated TEXT EDITING offline, something more like the online TEXT EDITING.

T) MORE DISCIPLINE TO KEEP REMARKS ON TARGET -- REDUCE THE GARBAGE TO SOME EXTENT

T) This technique is most effective in dealing with narrow, highly technical issues and least effective in dealing with

policy/conceptual issues. Our charter was more policy oriented and the t/c approach was of limited value. The participants were selected to represent sectors of the economy rather than dedication to achieving a result. Therefore, too many just didn't participate. On the other hand, some participants had such a strong vested interest in what the report says that they tried to dominate the proceedings.

T) I must confess a bias toward traditional face-to-face conferences.

In a way it's too easy to participate via teleconference. In a conference in which one is forced to prepare a paper or remarks and present them face to face, there is likely to be a sharper focus faster. You have to add to whatever comes out of this questionnaire some kind of cost/benefit analysis. What did it cost to provide the Apples, computer training, etc.? What would a traditional conference have cost? I don't pretend to know the answers, but you must have data from this experience.

T) I found it intrusive, demanding and frustrating. I do not care to become involved in another like it. Though it is interesting to read all of the extraneous thoughts of others, there is no assurance that participation of the best contributors is achieved. This can be done by a competent leader in a group discussion. Those of us who are forward and noisy may have put off the more valuable contributors. It takes too long to reach a conclusion or the elements of consensus. Even if we can believe what we read, there is no assurance that everyone is on board. More important, neither is there assurance that the objections have all been heard and considered. It is a cold medium !

T) MANY OF US ARE CONSTANTLY ON THE ROAD AND MOST OCCUPIED WITH OUR JOBS, THUS DO NOT HAVE THE TIME TO FULLY PARTICIPATE. I AM NOT CONVINCED THAT THIS IS THE BEST SYSTEM FOR SUCH ACTIVISTS.

T) WE WERE POORLY PREPARED FOR THE GROUP PROCESS PROBLEMS INHERENT IN THE METHOD OF COMMUNICATION.

OPEN-ENDED RESPONSES: BALANCED

T) Learning to use the equipment was both frustrating and fascinating. I do think the programing could have been considerably more friendly.

All in all it has been a most worth while experience.

T) Face-to-face meetings have their role in limiting excessive and unnecessary comments. Not all participants took equally active roles. The frustrating part was facing the backlog of comments when returning to the system. Managers will need experience on systems such as these, if we are to take advantage of the productivity aids promised. This was an exercise in productivity in the sense that a lot of stuff that went on was not very productive. It was a great start and proved that these aids are not mastered without some real effort on the part of the user. I have said many times that the future will require each of us to develop a "video discipline" for the 1980 life style.

T) Sometimes I feel as if I am in a meeting that people can only speak and cannot hear. The dynamic nature of a give and take session is totally missing. The positive nature of the conference is the fact that so many high level people can spend so many hours together in a constructive enterprise.

T) I would have liked a face-to face meeting before the interim and or final reports to clarify some points before the report was put together but I do think the teleconferencing method has worked extremely well. I found the conference particularly stimulating and very much enjoyed being in contact with the knowledgable individuals.

T) EIES is an interesting system. However, there is something about being face-to-face with other individuals that EIES simply cannot duplicate. The immediacy of responding to someone else's comment, and the lively interchange and sharing of ideas that can result, is simply not available. Nevertheless, I do understand the practicality of this system.

T) Clearly this is going to be a more productive way to work, but for our crowd, right now, the advantage was clearly with the academy. I think we wallowed about too much. I think technical people and social scientists use, and assign value to, the written word differently; and that affects our reaction to using the system. I am pleased to be a part of this process and project, I am less pleased with the quality of our product. I've been amused by the number of phone calls I've received from conference members who wanted to talk, not write,

T) Needed more direction to focus comments and study. Became impatient with comments which were excessively long. Missed the personal interaction where there was immediate feedback. Enjoyed the chance to read other reactions from those in other fields. If it were possible, I would have liked to have had another face-to-face meeting with the other members of the teleconference

T) The medium is neutral- it does not encourage or discourage participation. This makes it easy to drop out without peer pressure or motivation. There is no idea of how many people are actively staying involved other than looking at the comments over a long run. This does not help if people are actively listening but not pitching in. Those participants who generate a lot of verbiage (and therefore a lot of comments going by on the screen) gain the image of importance or weight, perhaps incorrectly. The system is not self policing to those prone to running on.

I liked the ability to interact on a non-realtime basis on issues

T) The experience was both frustrating and fascinating. It took up considerably more time than I was prepared to give when I agreed to participate. My travel schedule coupled with lack of secretarial or research help made it a one man show from my station. I felt much of the input was excessively wordy and a significant amount did not pertain to the task at hand. Wading through reams of messages at night tended at times to demotivate me from participation, but in view of the potential importance, I continued. Time devoted to computer was time stolen from family time; my good wife of 35 years

kept a stiff upper lip and didn't complain, to her credit. Relationships established during the conference were meaningful and I suspect many will outlast the teleconferencing experience itself. I learned a great deal about industries in which I'd had little previous exposure; e.g. service industries.

All in all, I must say that it has been a meaningful experience, one in which I am glad to have participated and one in which I feel fortunate to have been invited to join. Teleconferencing has a great potential.

T) Face-to-face for finalization of issues and recommendations is necessary. Teleconferencing is excellent for fact gathering. Particularly enjoyed the media of sending messages and comments and gaining responses in a rapid manner. Overall, it was an enjoyable experience and fostered friendships.

T) The experience itself was by far one of the best things that has occurred in my professional career. However I found it particularly frustrating to see the number of what I considered to be irrelevant comments on a number subjects and yet not to feel free to say that I considered them to be just that for fear that it would somehow stifle the activity. Also, I definitely was irritated by the mix of our conference participants. I do not question their abilities, only their relation and relativity to the subject of work and productivity. I am convinced that like Einstein, many were brilliant theoreticians. These are needed, but someone still has to be reality oriented. I should like to close my comments, however, by citing a personal activity which has occurred as a direct result of the teleconference. (NAME) of (COMPANY) and I got together and actually designed a program to retrain 1600 laid off workers and their managers for the new plant that (COMPANY) just bought. We are enormously proud of this joint activity which took the concept that others chewed on vigorously and made into a working reality. It probably wouldn't have happened without APC. Thank you all for an astonishing experience which I hope to be able to continue in.

T) The EIES approach is excellent in producing free-wheeling ideas and reaction. As preparation for a preliminary report it works very well. For the final report a face-to-face conference would be more productive. By that time the participants would know one another well, would appreciate how others think, and would have a solid agenda from which to work....The instruction manuals for using computers were written by experts who seem to know very little about how to write instruction manuals!

T) THOROUGHLY ENJOYED ELECTRONIC DISCUSSION. BEST FEATURE IS THAT IT STRETCHES THE WORK DAY IN AN ACCEPTABLE MANNER PERSONALLY. MOST FRUSTRATION IS LACK OF MECHANISM TO SEE "BIG PICTURE" AS DISCUSSION PROCEEDS, ENCOURAGES PICKING AT WORDS RATHER THAN FINDING NEW DIRECTIONS. MAJOR CONTROLLABLE PROBLEM WAS HEAVY-HANDED AND NARROWLY-DIRECTED FACILITATION. CLEARLY AT LEAST HALF OF VERY TALENTED GROUP WAS "TURNED OFF" BY DECISION TO BYPASS THE WHOLE OBJECTIVE-SETTING "FRONT END" OF THE PROJECT.

T) I miss the personal contacts.

Lag time in people getting in and out is problem

My slow typing

Great to be in touch with so many good heads

Quick access to current info

T) I FOUND THE EIES SYSTEM TO BE AN EXCELLENT WAY TO KICK IDEAS AROUND AND EXPLORE ISSUES. HOWEVER, I FOUND IT MUCH LESS SATISFYING AS A MEDIUM FOR THE PREPARATION OF A MAJOR REPORT. DIRECT, IMMEDIATE FEED-BACK WAS MISSING, WHICH IS VERY USEFUL FOR EFFICIENTLY POLISHING IDEAS IN PREPARATION FOR A FORMAL REPORT. BUT AS I SAID, FOR THE INITIAL EXPLORATORY STAGES AND SOME DEVELOPMENT OF IDEAS, IT IS EXCELLENT.

TABLE 7
MODERATOR PERFORMANCE

The amount of structure or organization provided by the moderator was:

11%	14%	21%	41%	9%	2%	1%
: 1 :	2 :	3 :	4 :	5 :	6 :	7 :
TOO LITTLE			JUST RIGHT			TOO MUCH

Total= 90 Av= 3.3 Std dev= .9

OPEN-ENDED RESPONSES EMPHASIZING IMPORTANCE OF MODERATOR ROLE

T) I BELIEVE THAT THIS TECHNOLOGY COULD PRODUCE BETTER CONFERENCING PROCESSES AND PRODUCTS---UNDER THE RIGHT CIRCUMSTANCES. KEY AMONG THESE CIRCUMSTANCES IS A STRONG MODERATOR WHO: 1) SETS AN AGENDA AND SCHEDULE FOR MOVING THRU THE AGENDA, 2) SUMMARIZES AT REGULAR AND FREQUENT INTERVALS WHERE THE GROUP IS IN THEIR DELIBERATIONS IN THE ELECTRONIC NOTEBOOK, 3) UNDERSTANDS TECHNIQUES OF GROUP DYNAMICS TO A SUFFICIENT DEGREE TO ENABLE HIM TO BRING EVERYONE INTO THE CONFERENCE ACTIVITIES. WITHOUT A STRONG MODERATOR, AGENDA, AND SCHEDULE FOR DISCUSSING THINGS, THE CONFERENCE WILL DRIFT AIMLESSLY AND FAIL TO TAP INTO THE CREATIVE ENERGIES OF THE PARTICIPANTS AND TO UTILIZE THIS POWERFUL MEDIUM.

T) The moderator is a prime factor in reaching a successful conclusion within the work group. Ours was quite effective. He could have clamped down harder on excessively verbose comments.

T) I FOUND THE STRUCTURE OF MY CONFERENCE VERY FRUSTRATING AND RIGID. WE SHOULD HAVE MADE BETTER USE OF OUR TIME IN THE HOUSTON MEETING TO EXPLORE THE OBJECTIVES AND PROCESS AND HAVE BETTER UNDERSTANDING AND AGREEMENT ON WHAT AND HOW WE WERE GOING TO PROCEED. IN MY OPINION THE MODERATOR DECIDED TOO MUCH AND IMPOSED HIS STRUCTURE ON THE GROUP.

T) I feel strongly that the success of any meeting depends to an important extent on the control and guidance the chair is capable of giving it. If anything this leadership is even more crucial with this media.

T) I think an actively involved moderator is a must. In the conference in which I participated, the moderator did a superb job WHEN HE PARTICIPATED. The problem was that he did not play an active enough role in shaping the conference and keeping it on target, especially in the early months. Without that kind of participation, many participants go off the track, or else fail to communicate with one another.

T) The EIES idea is pretty good, but one needs a strong leader. (NAME) could not be a substitute for (MODERATOR) because he does not know enough about the subject. At times he accepted comments as valid that had little basis. I know he was trying his best to get this conference going. (MODERATOR) is a hard-working and capable person. He just did not have the time for this.

Table 8

DIFFERENCES AMONG CONFERENCES

CONF	AMOUNT STRUCTURE	# MOD	QUALITY	IMPROVE	OTH HI
TRAIN	2.8 (6)	41 (6)	4.2 (5)	2.6 (5.5)	11
COOP	3.1 (4)	44 (5)	4.0 (6)	4.2 (1)	3
HEALTH	2.3 (7)	26 (7)	3.7 (7)	2.2 (7)	5
QUALITY	2.9 (5)	56 (4)	5.3 (1)	2.6 (5.5)	18
REWARD	3.7 (3)	175 (1)	4.4 (4)	4.0 (2)	6
TECH	3.8 (2)	125 (2)	5.1 (3)	3.3 (4)	13
INFO	4.2 (1)	91 (3)	5.0 (2)	3.5 (3)	6
ANOVA P	.001		.1	.16	

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